

## ASH GROVE CEMENT COMPANY



WESTERN REGION

December 30, 1994

Mr. Fred Austin  
Puget Sound Air Pollution Control Agency  
110 Union Street, Suite 500  
Seattle, WA. 98101-2038

Dear Mr. Austin,

Ash Grove Cement Company proposes the following alternate emission limits to be specified in Order of Approval 5730 that would apply during start up, shutdown and scheduled maintenance.

PROPOSED LIMITS IN PPM @ 10% O<sub>2</sub>

<u>Pollutant</u>	<u>Start up/ Shutdown</u>
Sulfur dioxide	200/1hr
Nitrogen dioxide	1000/1hr
Carbon monoxide	1049/8hr

We believe these are realistic limits for the emissions which could result during a normal start up and are based on 1994 historical start up data shown in Tables A and B. Since carbon monoxide has never exceeded the operating limit specified in Order of Approval 5730 during start up, the alternate limit would reflect no change from the operating limit. The alternate limits and the Kiln Start up/shutdown and maintenance procedures submitted in Ash Grove's May 9, 1994 letter to Mr. Austin and accompanying this letter should be used to form the criteria for determining unavoidable excess emissions during upset.

As previously explained, an increased burner output is required to raise the temperature of the kiln containing several hundred tons of material and the preheater vessels to start the clinkering process and then maintain the kiln and vessel temperature as new feed is slowly added in increasing amounts. The fuel and flame temperature is gradually reduced to balance the kiln temperature, feed rate and ventilation to achieve a stable kiln.

The process called Start up consists of two periods covering a maximum of 48 hours; the kiln preheating and kiln stabilization. Kiln preheat requires 24 hours to raise the system temperature from a cold start to the point where raw feed is introduced. This time requirement is actually dependant on the amount of heat retained in the kiln system after shutdown. The hotter the kiln remains after shutdown the shorter the preheat period. (See Start Up Procedure - Preheat Schedule).

During the preheat phase of start-up, sulfur dioxide levels can occasionally spike above the permitted concentration limit. Prior to adding feed, ventilation in start-up is insufficient to allow for the addition of sorbent used to reduce levels. This condition can cause exceedances of SO<sub>2</sub>. Normally, sulfur dioxide can be controlled as necessary once feed is introduced into the kiln with the addition of sorbent.

Kiln stabilization also requires a maximum time of 24 hour to achieve normal production and stable emissions after raw feed is introduced to the system. It is during this period that the heat input is gradually reduced and the feed rate increased to achieve normal production. SO<sub>2</sub> and NO<sub>x</sub> spikes can occur during this phase.

The higher flame temperature during start up generates nitrogen oxide in higher emission rates than during normal operations. NO<sub>x</sub> will occasionally exceed the one hour operation concentration limit during the start up phase but returned to below permitted levels as the kiln is stabilized.

During start-up excursions above the normal operating limits are unavoidable because they are a function of the necessary, transient flame temperature and process conditions which are inherent in the design of the kiln system and which cannot be controlled by better equipment, operation or maintenance.

Yours truly,

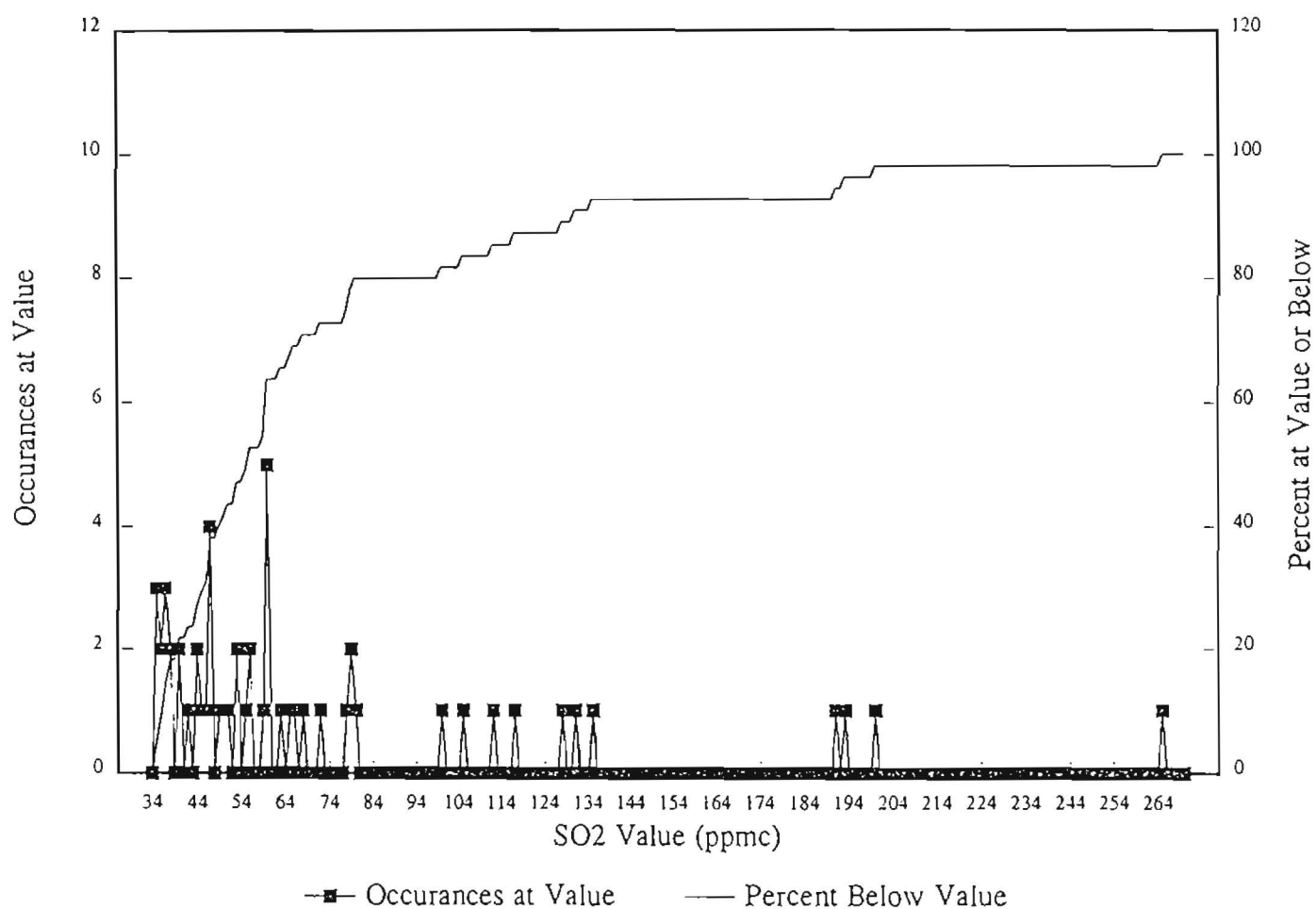


Gerald J. Brown  
Manager, Safety and Environmental

Copy: Ed Pierce  
Nate Fernow  
Hans Steuch  
Matt Cohen

# Distribution of SO2 on Startup

Data Tabulated Jan - Nov 94

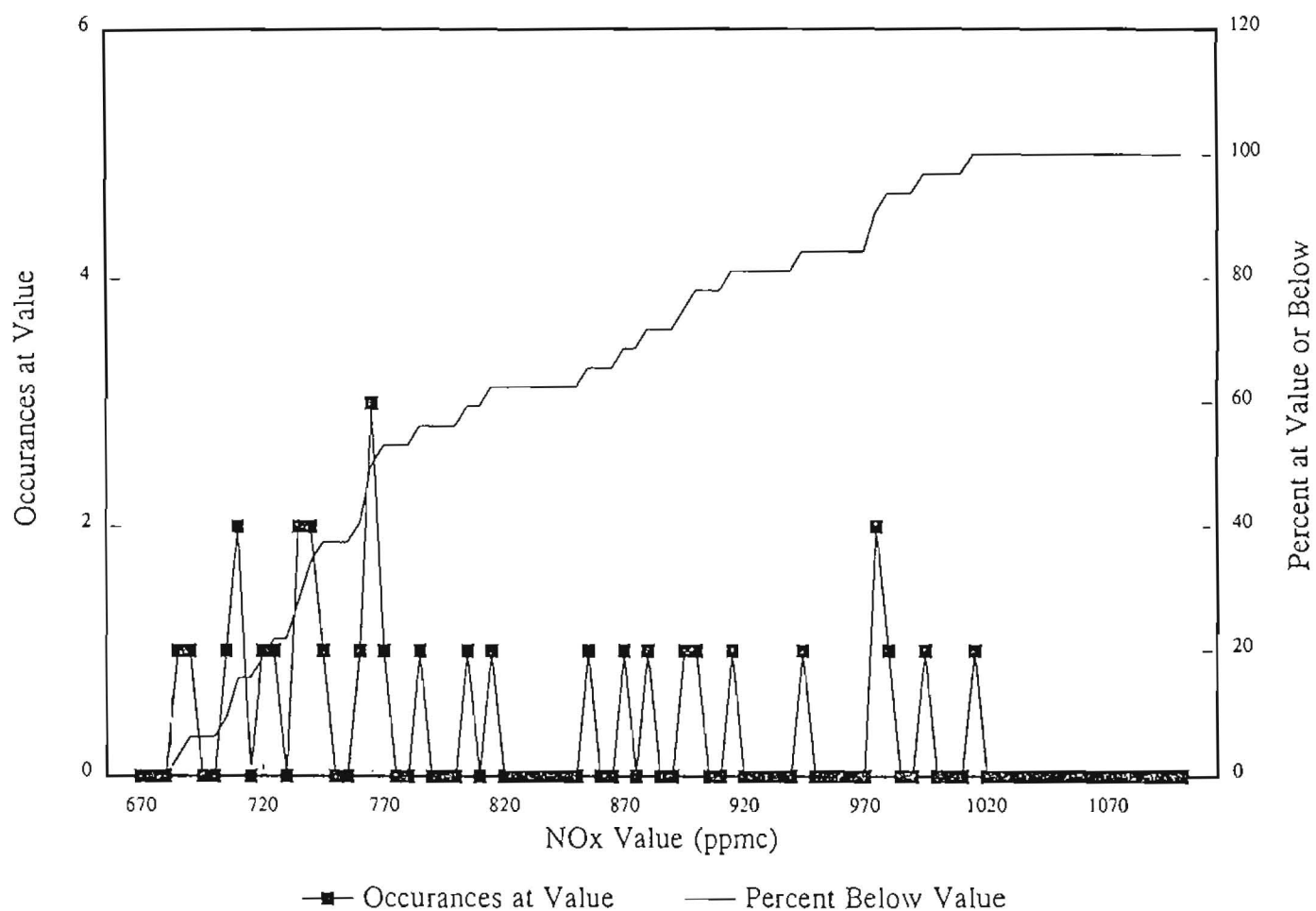


Data Points are Hourly Averages, Corrected to 10% O<sub>2</sub>

Table A

# Distribution of NOx on Startup

Data Tabulated Jan - Nov 94



Data Points are Hourly Averages, Corrected to 10% O<sub>2</sub>

Table B

Appendix A  
Kiln Start Up/Shutdown  
and Maintenance Procedures

KILN START UP - PREHEATING

1. Start main baghouse.
2. Follow the 24 hour preheating schedule as shown on the attached graph for increasing kiln temperature, decreasing oxygen and for kiln rotation.
3. Adjust the ID fan damper and speed to increase stage 5 temperature approximately 60 degrees F per hour (following the preheating schedule) as fuel is increased.
4. Adjust ID fan damper and speed to slowly decrease kiln feed end oxygen per preheat graph.

KILN START UP - FEED ADDITION

1. When kiln is prepared for feed as per the preheating schedule, start kiln main drive on .9 revolutions per minute (RPM).
2. After kiln is on main drive, start kiln feed at 75 tons per hour.
3. When the feed enters the preheater at stage 1, increase ID fan and fuel to maintain 2% oxygen at kiln feed end and 1500 degrees F stage 5 exit temperature.
4. Add sorbent, when necessary to control sulfur dioxide emissions to below permit level.
5. As permitted by the quality of the material produced, increase feed rate and adjust the draft and the fuel accordingly to achieve 160 tons per hour production.
6. Estimated START UP time: 0 - 48 hours depending on kiln preheating.

#### KILN SHUT DOWN

1. Stop feed, shut off fuel and reduce draft.
  - a. For emergency shut downs, retain as much heat as possible in the kiln to ease restart after the cause is corrected.
2. The kiln is rotated per the schedule:

0 - 1 Hours	Continuous turns
1 - 3 Hours	5 minute turns
3 - 8 Hours	10 minute turns
8 - 16 Hours	12 minute turns
16 - 24 Hours	30 minute turns

All turns are to be made on auxiliary drive and should be approximately 100 degrees.
3. Open the preheater damper 5% every hour beginning 2 hours after the fire is taken off the kiln. If the temperature at the 5th stage exit is decreasing faster than 60 degrees F per hour, reduce opening percentage accordingly.
4. If a critical position is made or heavy rains begin, kiln should be rotated continuously until either clears.
5. The main bag house will remain in operation.
6. 24 hours is required for cool down before entry is made into the kiln.

#### MAIN BAGHOUSE MAINTENANCE PROCEDURES

##### Monitoring Performance

1. Main Baghouse temperatures and pressures in the are continuously monitored by the control room while performance is checked by an opacity monitor on the kiln stack.
2. Condition of the baghouse components are inspected routinely to prevent failures occurring during operation.

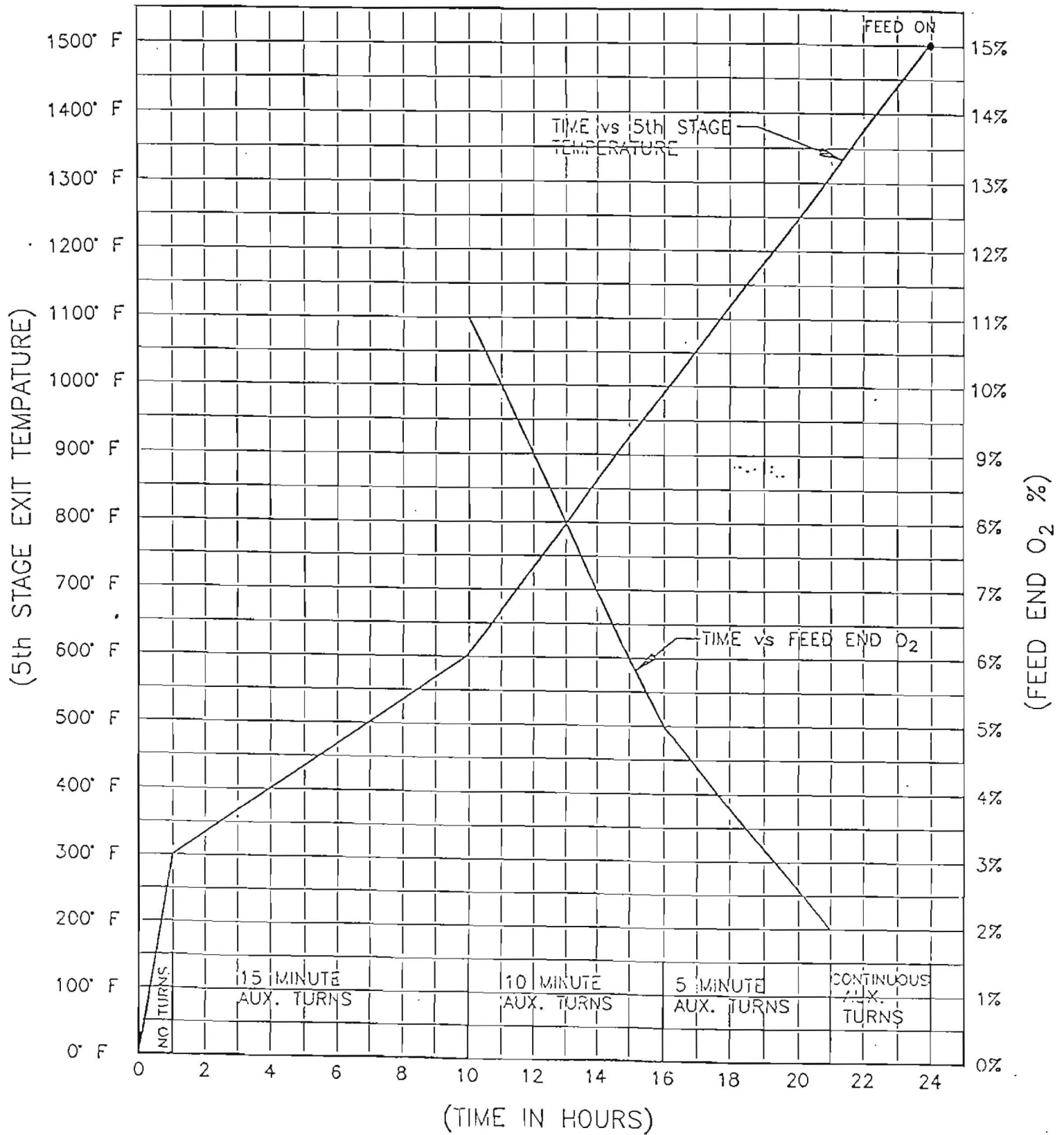
##### Trouble shooting

1. Efforts to repair deficiencies will begin immediately upon detection.
2. Once a problem is identified and located, individual cell(s) containing the defective equipment can be isolated for repairs without shutting down the entire baghouse.
3. Bag House inlet and blow back dampers are closed and secured to isolate the cell(s) containing the problem .
4. Cell(s) doors are opened and the cell is allowed to cool for safe entry.
5. Once the repairs are completed, the cell(s) is returned to operation.

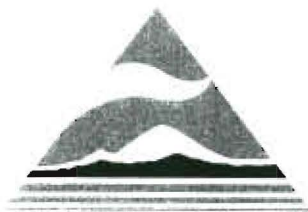


# ASH GROVE CEMENT CO.

## Appendix A



KILN PREHEATING SCHEDULE



PUGET SOUND AIR POLLUTION CONTROL AGENCY  
KING COUNTY    KITSAP COUNTY    PIERCE COUNTY    SNOHOMISH COUNTY

September 19, 1995

Gerald Brown  
Manager, Safety and Environmental  
Ash Grove Cement Company  
3801 E Marginal Wy S  
Seattle, WA 98134

RECEIVED

SEP 20 1995

AGCW-SEATTLE

Dear Mr. Brown:

Notice of Construction No. 5730

Inspectors Melissa McAfee and Elizabeth Gilpin and I visited the Ash Grove facility on September 7, 1995 and discussed Notice of Construction No. 5730. This Notice of Completion was signed off and returned to the Agency.

The Agency requests the following information.

- The notification may have been submitted too early because the approved 20,000 cfm Pre-Grind Crusher baghouse had not yet been installed at this time. Please inform the Agency within 30 days after the new baghouse is completed.
- One 5,000 cfm baghouse was permitted, but actually two small baghouses at 1,500 cfm each were installed. Please notify the Agency of this change from the listed equipment in the Order of Approval so the approved 5,000 cfm baghouse can be changed to two 1,500 cfm baghouses. Also, indicate if the 5,000 cfm baghouse will or will not be constructed.
- Notice of Construction No. 5730 indicated the two 4,000 cfm baghouses would vent outside the Finish Mill. Currently, these baghouses are constructed so they vent inside the Finish Mill and, therefore, will be listed on the equipment list as asterisked items. If these baghouses have their venting changed to the outside, please notify the Agency and this approved installation will be updated on the equipment list.

If you have any questions please contact me at 689-4055.

Very truly yours,

Fred L. Austin  
Air Pollution Engineer

mj

cc: D. S. Kircher  
J. M. Willenberg  
E. M. Gilpin  
M. McAfee

Dennis J. McLerran, Air Pollution Control Officer

B O A R D O F D I R E C T O R S

Chairman: Win Granlund, Commissioner, Kitsap County  
Janet Chalupnik, Member at Large  
Edward D. Hansen, Mayor, Everett

Lynn S. Horton, Mayor, Bremerton  
R.C. Johnson, Councilman, Snohomish County  
Gary Locke, King County Executive

Harold G. Moss, Mayor, Tacoma  
Norman B. Rice, Mayor, Seattle  
Doug Sutherland, Pierce County Executive

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AGCS2M002186

SEA0589



# ASH GROVE CEMENT COMPANY



"WESTERN REGION"

September 25, 1995

Mr. Fred Austin  
Puget Sound Air Pollution Control Agency  
110 Union Street, Suite 500  
Seattle, WA. 98101

Dear Mr. Austin,

Ash Grove submits the following to clarify the status of Notice of Construction No. 5730:

The Notice of Completion submitted on September 7, 1995 is intended for the Finish Mill High Efficiency Separator Project. Construction on the Clinker Pre-Grind Crusher also included in NOC 5730 with a 20,000 CFM baghouse has not been started. Ash Grove will notify PSAPCA within thirty days after the completion of this project.

During the Finish Mill High Efficiency Separator Project, modifications made during construction included some changes related to the baghouse system. These modifications are not reflected in Notice of Construction No. 5730 but significantly reduce the volume of air vented to the outside from that originally requested.

The as built construction and modifications to NOC #5730 include:

1. Two (2) - 77,000 CFM baghouses; vented outdoors.  
Modifications: None
2. Two (2) - 4,000 CFM baghouses; vented indoors.  
Modifications: From two (2), 10,000 CFM baghouses vented outdoors.
3. Two (2) - 1,500 CFM Baghouses; vented indoors.  
Modifications: From one (1), 5000 CFM baghouse; vented outdoors.  
Please note that in order to achieve the intended efficiency, the extra 2000 CFM or the original volume of 5000 CFM requested in the NOC may be required. If necessary, this would be accomplished by upgrading or replacing these baghouses.

PSAPCA will be notified of any changes made to either the equipment or venting location as described above .

Sincerely yours,

Gerald J. Brown  
Manager, Safety and Environment  
cc: ESP  
NAF  
HES